ADempiere User Manual

Part A

ADempiere Overview

Copyright

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Introduction

With ERP-systems, there is a new aera of „Free Software“, which goes beyond the functionality of more technical oriented „Free Software“ like compilers, the GNU/Linux operating system or application server like Jboss. The ADempiere ERP Business Suite (called Adempiere in the later) does provide the basis for SME and does offer an alternative to SAP, Oracle or Navision.

One of the many definitions of ERP: „*A software architecture that facilitates the flow of information between all functions within a company such as manufacturing, logistics, finance and human resources.“*[1] and one definition of an ERP-System is: „ An ERP-system is an i*nformationsystem, that implements business processes and rules for all main business departments inside an enterprise as well as between enterprises.“*[2]

„Traditional IT systems are mostly built around an accounting package with different software to cater to the seemingly unrelated departments' needs. But how often do these different underlying systems lead to isolated pockets of data within the organisation? The answer, unfortunately, is too often. Information is usually held in the large amount of data that the organizations already have, such as data ranging from supply chain level to customer facing departments (e.g. sales data, stock information, customer data, market information, etc.). Within this explosion of data lie the answers that management needs to define its strategy and manage the business properly. Some examples of issues encountered in the traditional IT systems are as follows:

- *Only a compartmental view of the activities of the business are available. Too much time is spent piecing the varying departmental information together rather than using the information itself.*
- *Information gaps exist (due to the lack of communication between some departments) and are only filled by derived information or expensive and inefficient bridges.*
- *Duplicates of data are formed, which need comparing and cross-checking. Management spends valuable time locating the errors and inconsistent data.*
- *Difficulty scaling with a growing company. As the company grows, the old IT system is replaced with a different system and inherits the same flaws.*

Naturally, all this results in many inefficiencies, loss of revenue as well as higher cost of management that could be eliminated through an implementation of ADempiere.“[3]

1.1 ERP History

1.1.1 Material Resource Planning – MRP

The original MRP-Concept has been developed in the 50th / 60th . This concept is used at plant level. This was possible, because the capacity of computers has increased to handle the magnitude of data to be processed. Times have changed from consumption-oriented to demand-oriented requirements planning.

1.1.2 Manufacturing Resource Planning I – MRP I

In the 70th in addition to MRP the planning of production programs was included as an enhancement and called MRP I. The planning methods does include magnitude as well as time planning,

1 Blanchard
2 Kurbel, P. 241 (Mauth)
3 http://www.adempiere.com/wiki/images/3/34/Why_should_a_company_implement_ADempiere_v2.pdf Chapter 1. Copyright Posterita, licence GPL

but both were strictly separated. They were part of the so-called successive planning method.

1.1.3 Manufacturing Resource Planning II – MRP II

With MRP II strategic information have been added to the planning process. Strategic information are sales and development forecast information to calculate the required Material and plan the required times to fullfil a customer's order, which is the base for the primary demand. After having determiend the primary demand, the next planning step is to determine the necessity to order additional material which is not on stock, but required for the primary demand. If all demands are determined the next step will be initiated. This step consists of the time planning to determine the production time and the required resources. All these information will be the base for initiating the production process in order to deliver the ordered product just in time with no or minimal waste of resources and costs.

1.1.4 Enterprise Resource Planning – ERP

With the introduction of ERP, the production focus was extended to consider customer and market-orientation to be used in the complete planning and production process from procurement to sales with respect to consider all enterprise resources.

1.1.5 Advanced Production Schedule – APS

All improvements, which have been made from MRP to ERP have made a lot of progress. With the globalization process and just in time production, it is getting more and more important to consider inter-enterprise communication for suplly chain management. It is important to udnerstand, that SCM is not a 1:1 relationship, but in the worst case a n:m relationship, which have to taken into account for so-called ERP-Systems. The service-orientation is only one aspect to interconnect loosly-coupled enterprise systems. Interface have to be provided, which does allow, to take vendor stock information into account, when setting up own production schedules. Hiwever, this kind of communication will required trust between business partners. This has to be learned. It has to be learned to replace intra-enterprise trust with inter-enterprise trust. This is a business issue.

1.2 Free Software

The *Free Software* project was initiated by Richard M. Stallman in 1984 and was called the GNU (GNU's not Unix) project. The idea behind *Free Software* is a freely available unix like operating system as a basis for exchanging information and knowledge. This idea was born, when computer manufacturers did not support anymore open but proprietary software. Proprietary software delimits the exchange of information and impeded faster results in research work, as Stallman was accustomed to at the MIT. *Free Software* is based on the so called four freedoms[4]:

- The freedom to run the program, for any purpose (freedom 0).
- The freedom to study how the program works, and adapt it to your needs (freedom 1). Access to the source code is a precondition for this.
- The freedom to redistribute copies so you can help your neighbor (freedom 2).
- The freedom to improve the program, and release your improvements to the public, so that the whole community benefits (freedom 3). Access to the source code is a precondition for this.

For example GNU/Linux and the ADempiere ERP Business Suite are *Free Software* based on GNU/GPL Version 2.

4 http://www.gnu.org/philosophy/free-sw.html

1.3 Open Source

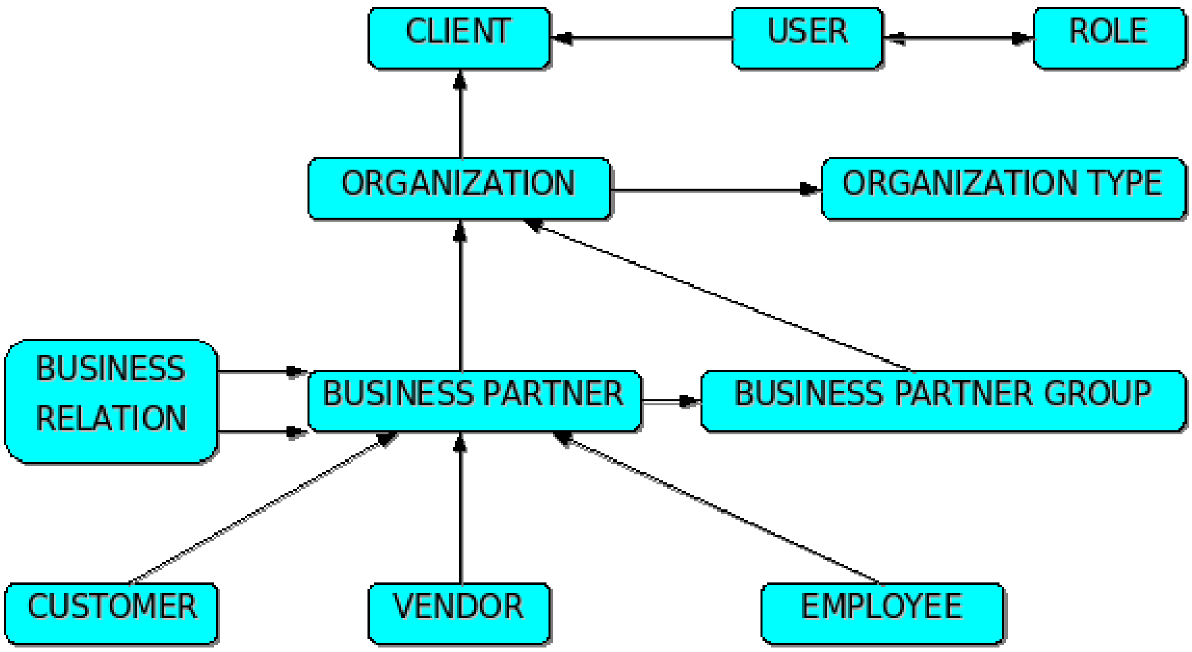
The term Open Source was created in 1998 by the Open Source Initiative (OSI) and can be seen as a marketing programm for „Free Software“. „The OSI is actively involved in Open Source community-building and education. OSI Board members frequently travel the world to attend Open Source conferences and events, meet with open source developers and users, and to discuss with executives from the public and private sectors about how Open Source technologies, licenses, and models of development can provide economic and strategic advantages.“[5]

5 http://www.opensource.org/about

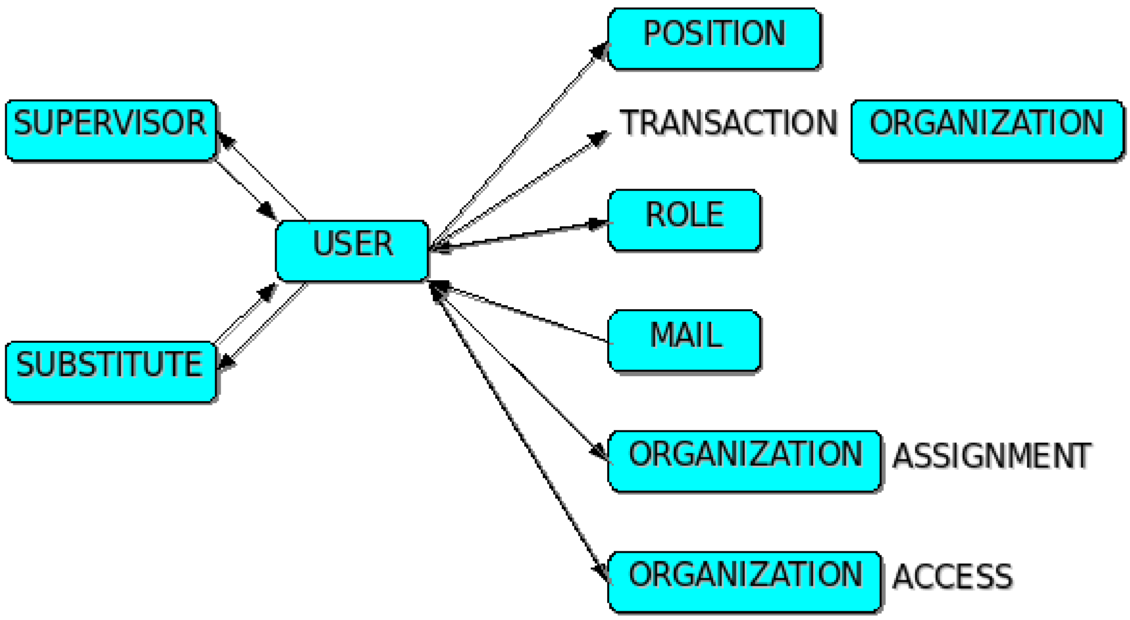
2 Architecture and Concepts

2.1 Schema's explaining the application (data) structure

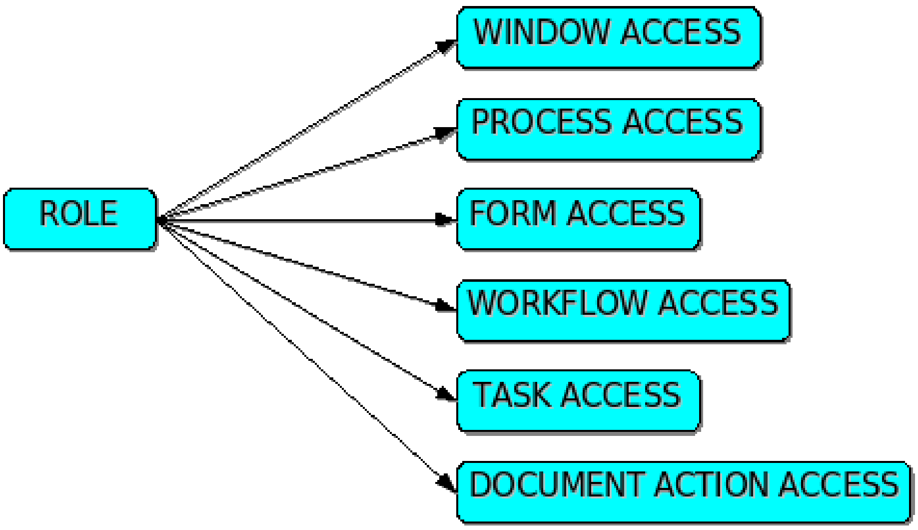
2.1.1 Client



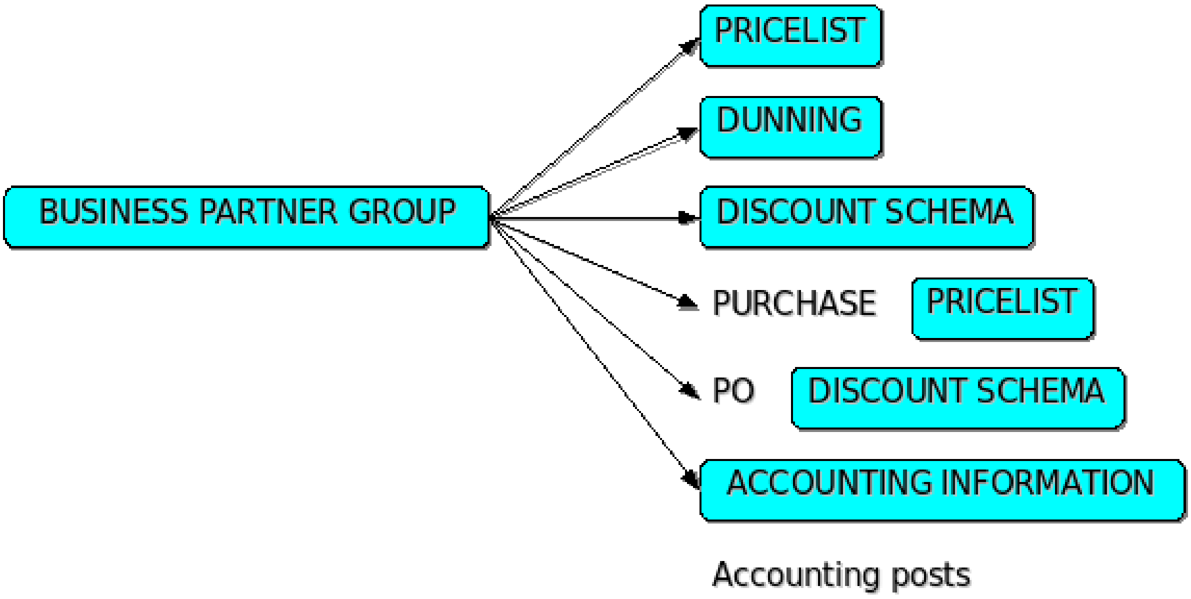
2.1.2 User



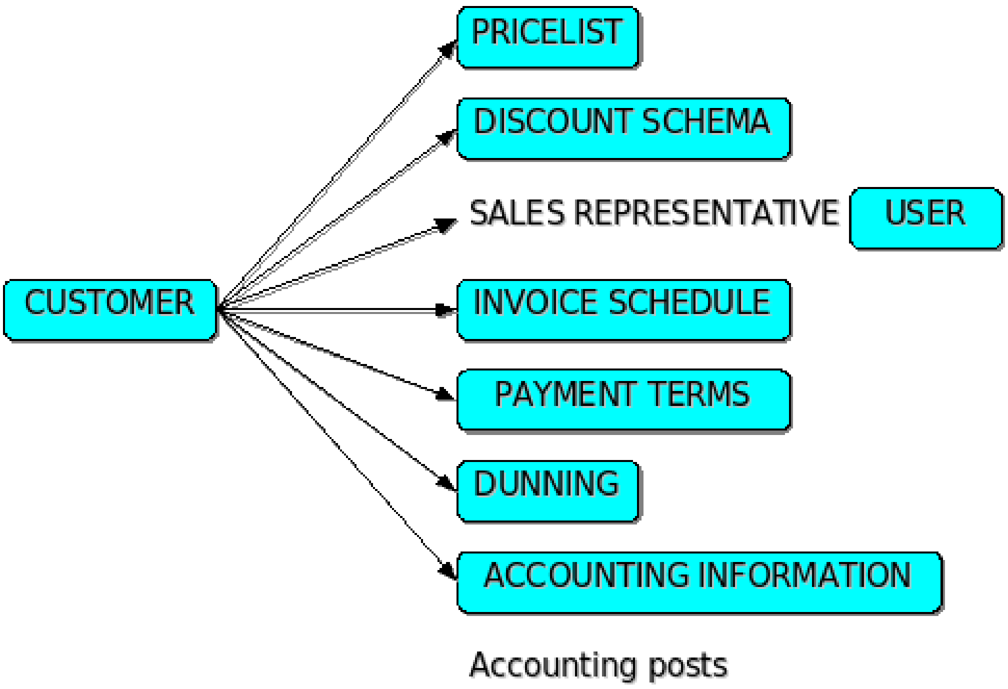
2.1.3 Role



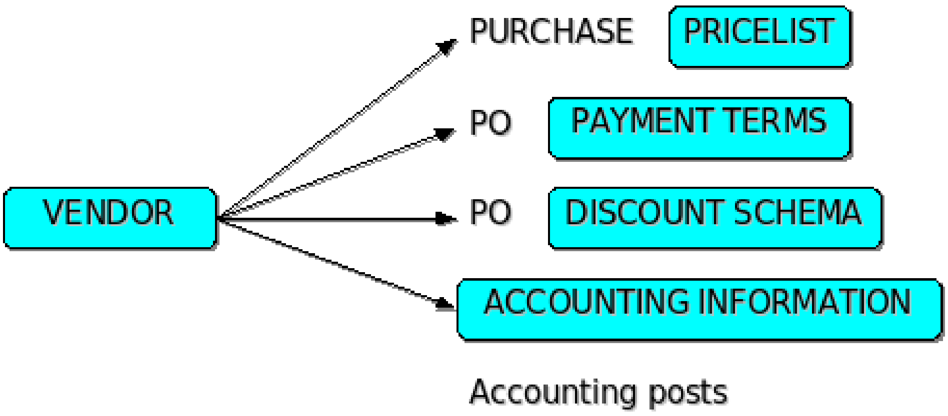
2.1.4 Business Partner Group



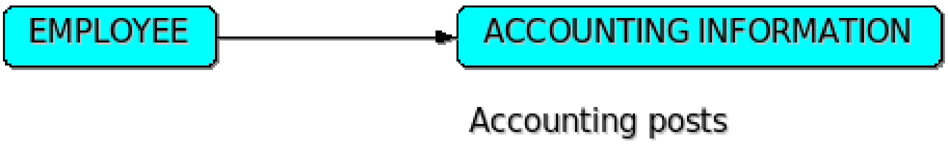
2.1.5 Customer



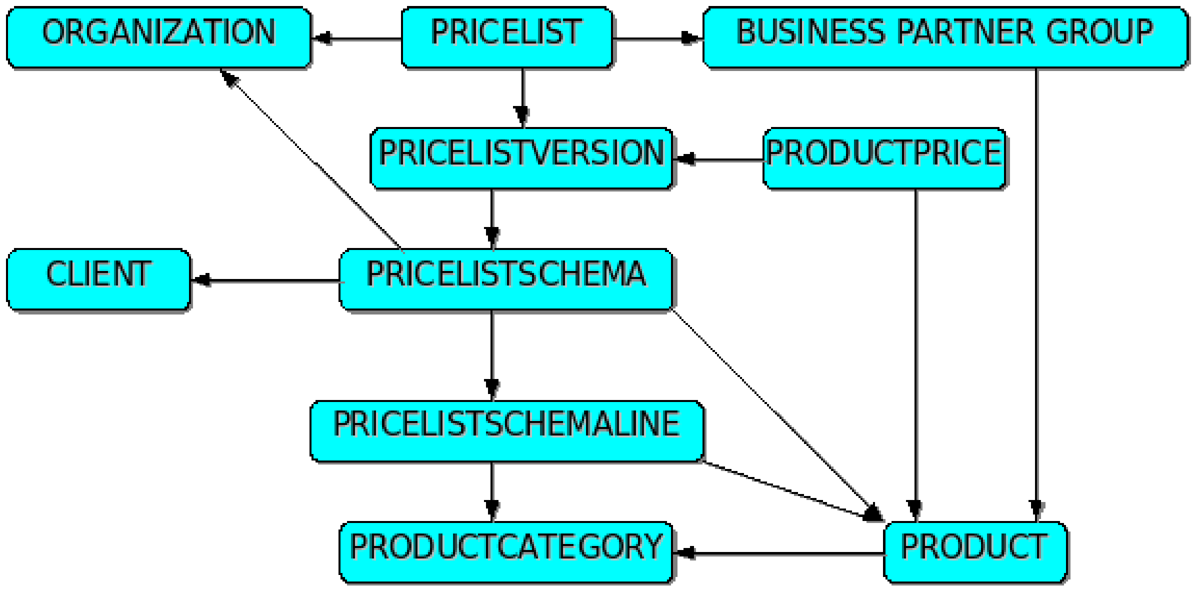
2.1.6 Vendor



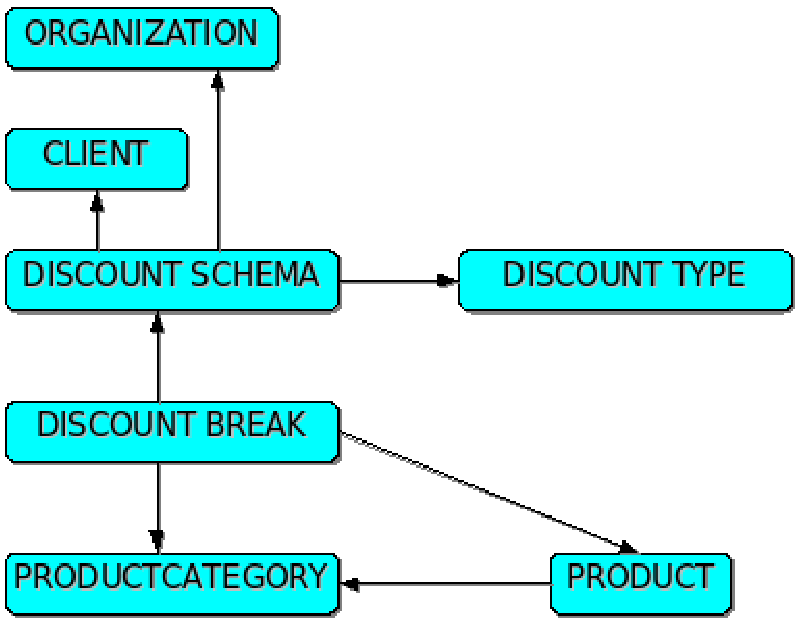
2.1.7 Employee



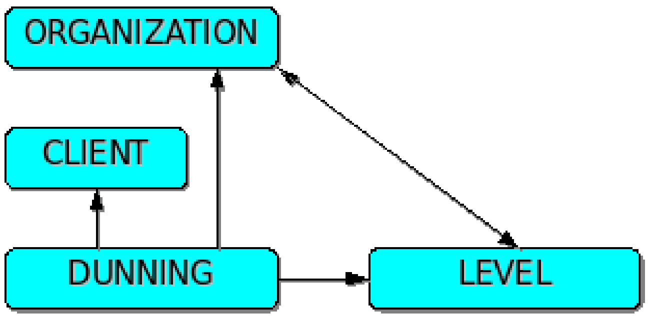
2.1.8 Price list



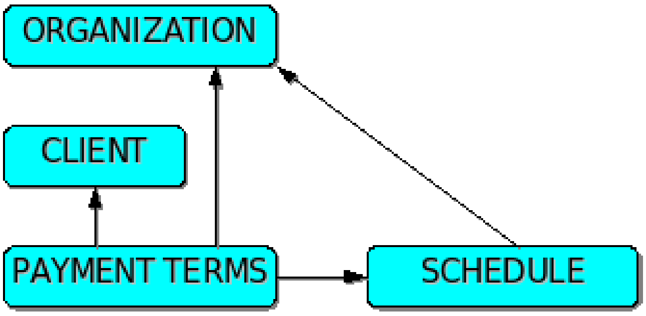
2.1.9 Discount Schema



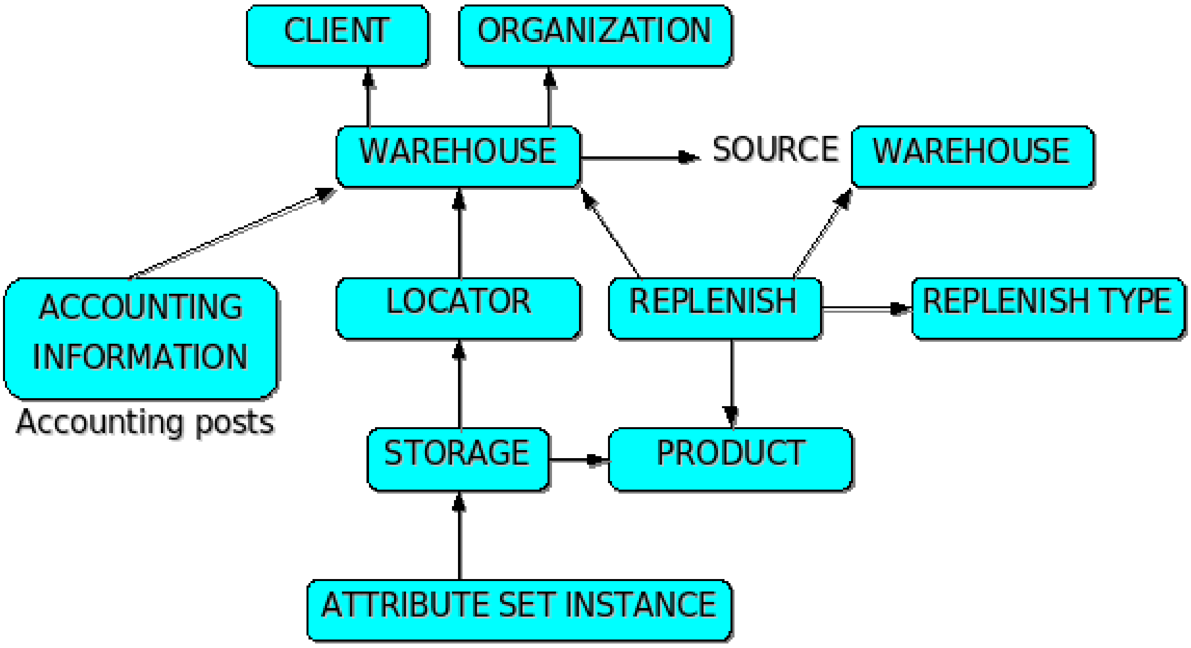
2.1.10 Dunning



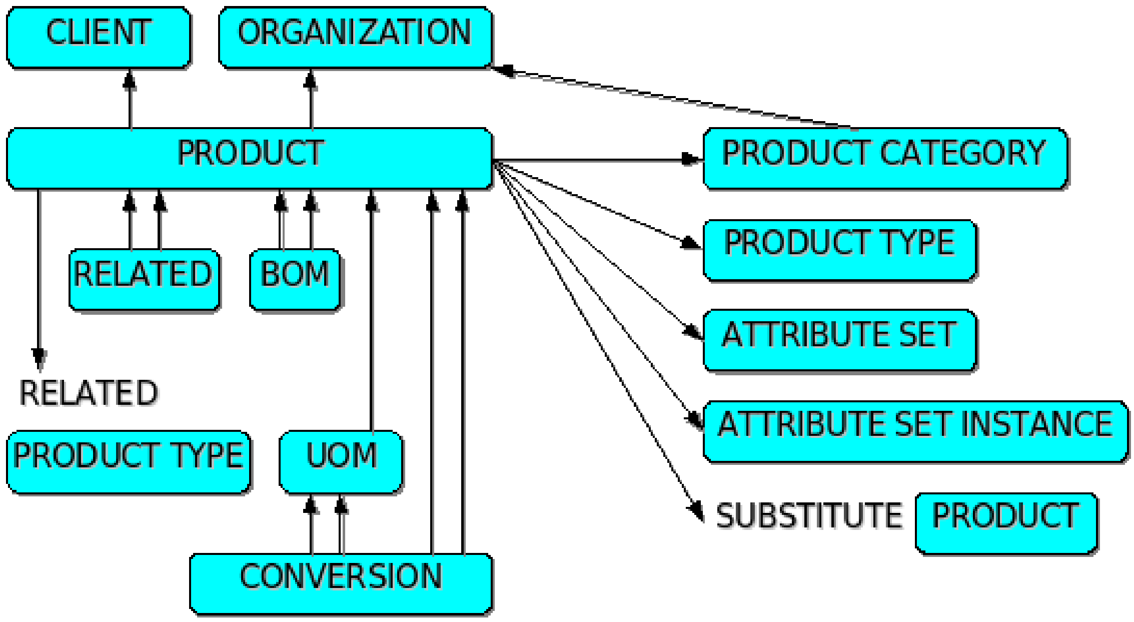
2.1.11 Payment terms



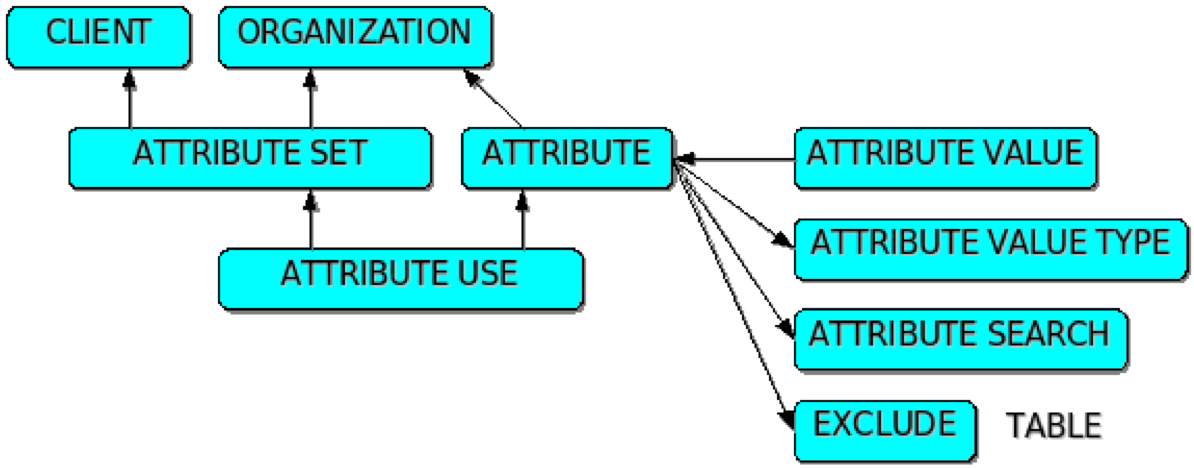
2.1.12 Warehouse



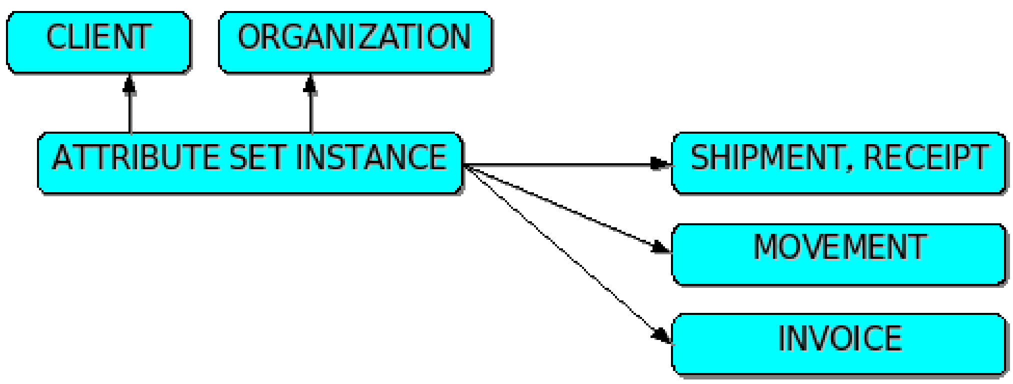
2.1.13 Product definition



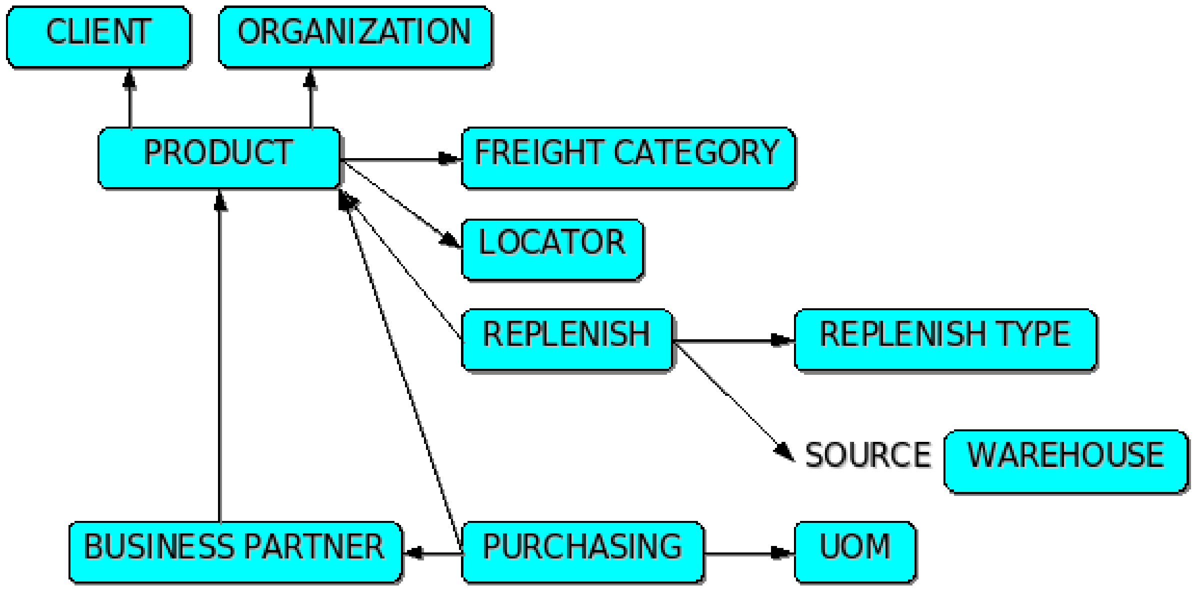
2.1.14 Attribute Set



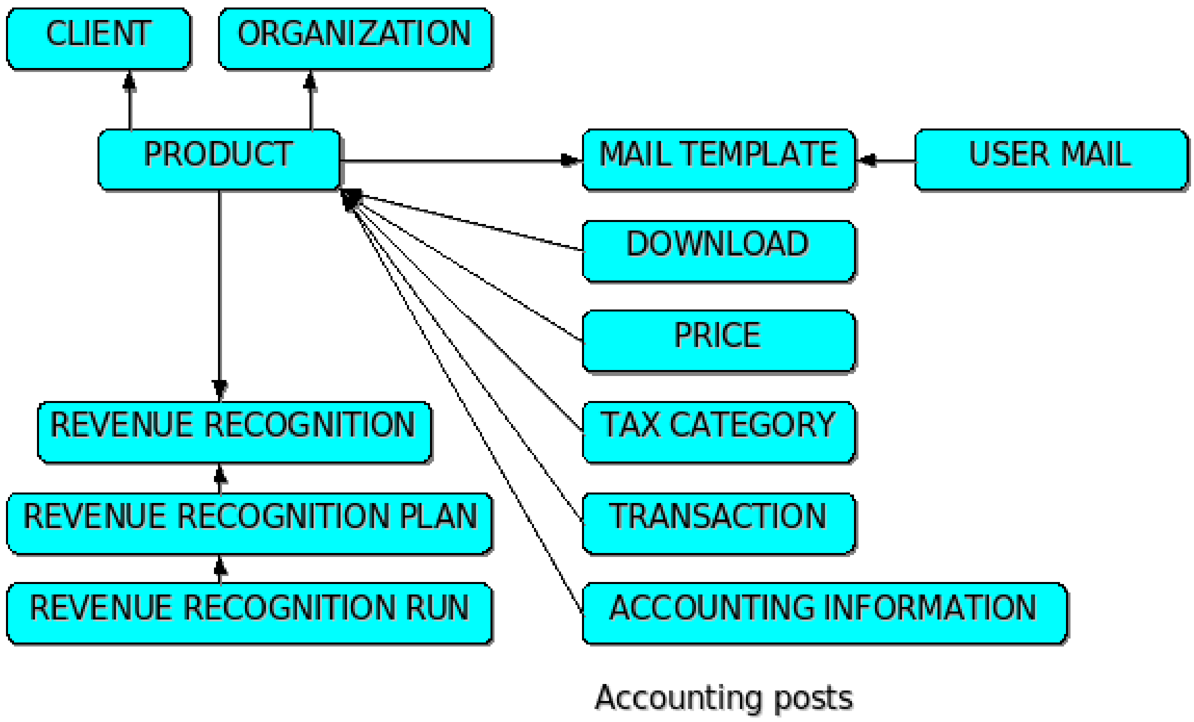
2.1.15 Attribute Set Instance



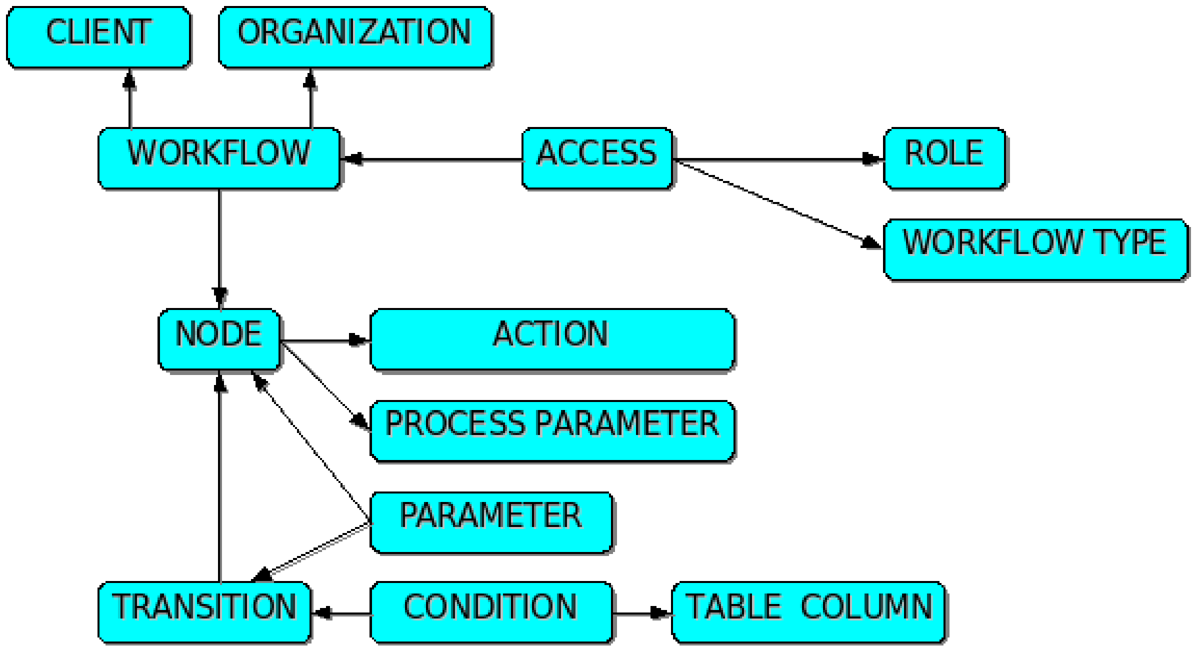
2.1.16 Product Inventory



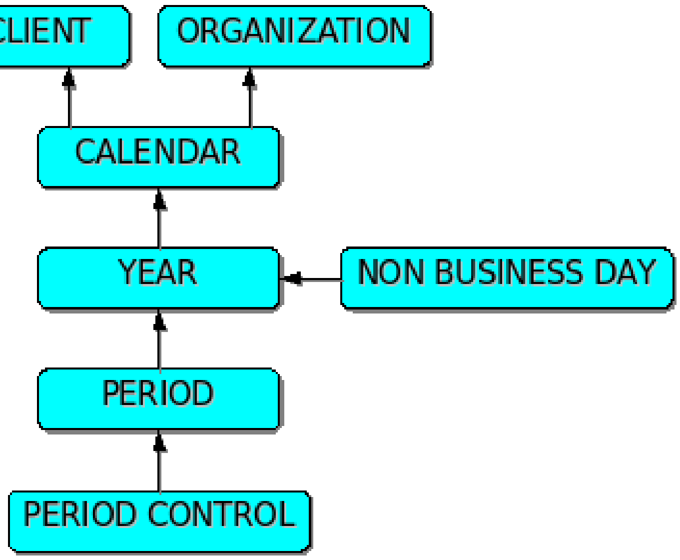
2.1.17 Product Price / Communication



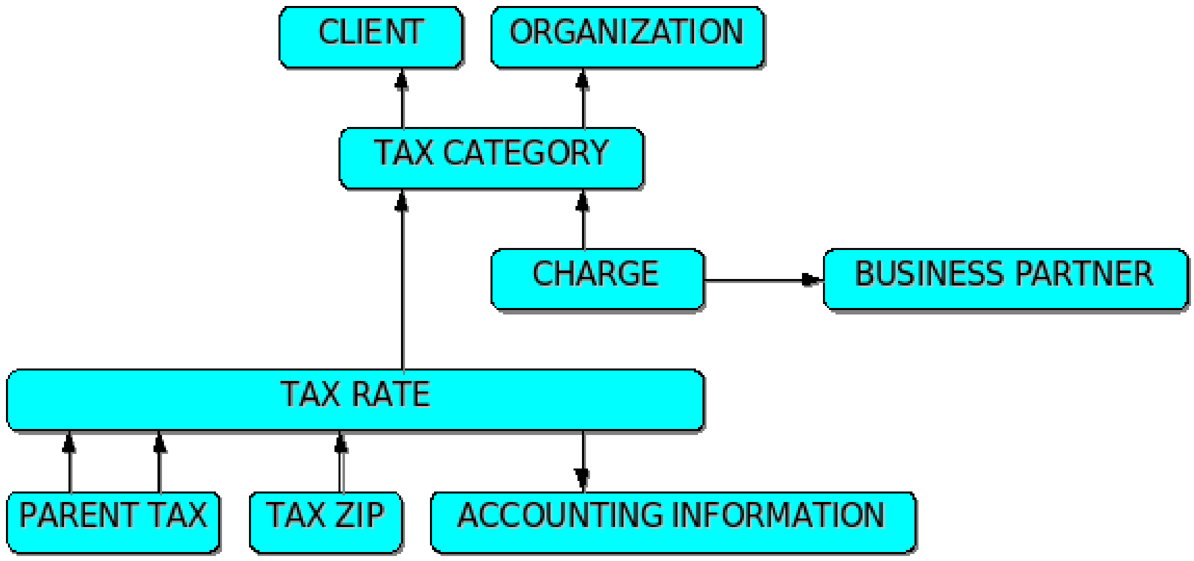
2.1.18 Workflow



2.1.19 Calendar

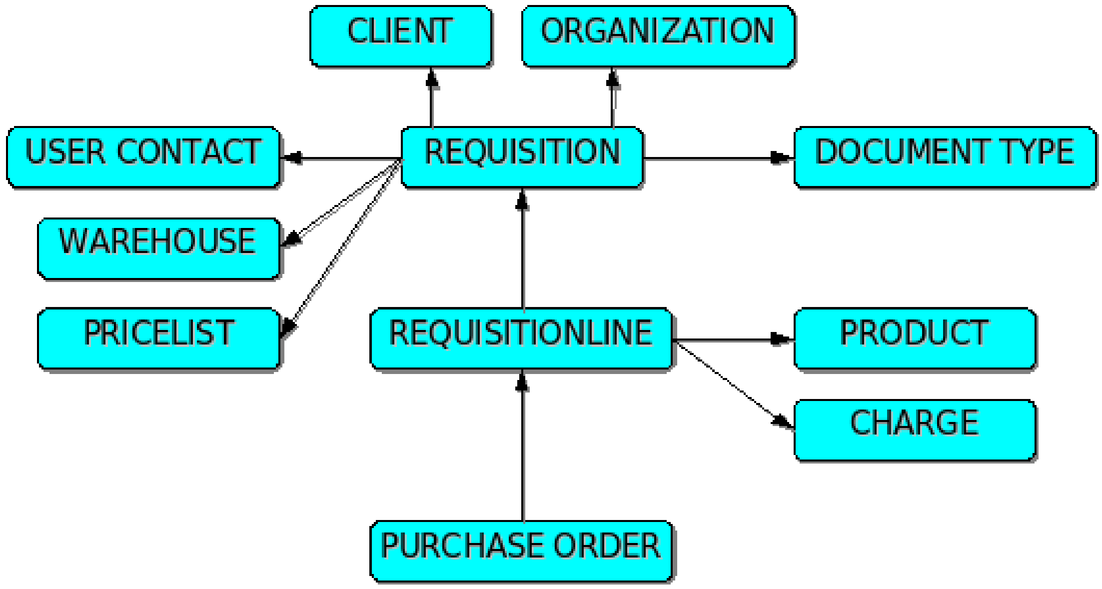


2.1.20 Tax

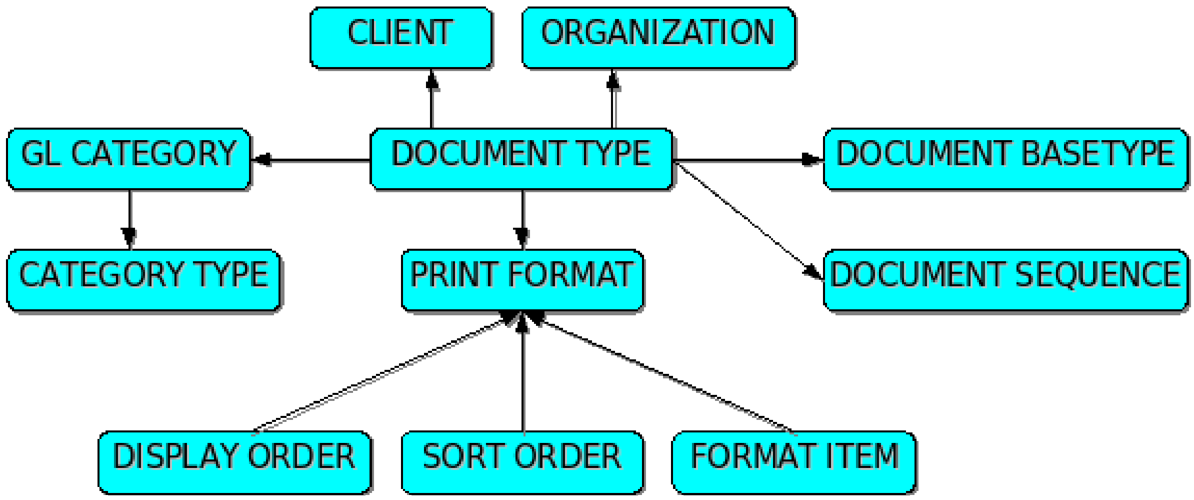


Accounting posts

2.1.21 Requisition



2.1.22 Requisition


CLIENT
ORGANIZATION
GL CATEGORY
DOCUMENT TYPE
DOCUMENT BASETYPE
CATEGORY TYPE
PRINT FORMAT
DOCUMENT SEQUENCE
DISPLAY ORDER
SORT ORDER
FORMAT ITEM

2.2 Used terms

2.2.1 Client

The Client is the highest level of an independent business entity. Each Client will have one or more Organizations reporting to it. Each Client defines the accounting parameters (Accounting Schema, Tree definition, Non Monetary UOM's)

In most cases client will be the name of the company using ADempiere.

2.2.2 Users

Users can log into the system and have access to functionality via one or more roles. A user can also be a business partner contact

2.2.3 Role

The User Roles Tab define the Roles each user may have. The Roles will determine what windows, tasks, processes and workflows that a User has access to.

2.2.4 Organization

An Organization is often a legal entity or sub-unit for which documents and transactions are processed.

Normally physical locations like office, company branche, shops, factory location, ...

2.2.5 Organization type

Organization Type allows you to categorize your organizations for reporting purposes

2.2.6 Business Partner

The Business Partner is any party with whom you transact. This includes customers, vendors and employees.

(have Back Account, Location, Contact, Withholdiing)

2.2.7 Business Partner Group

The Business Partner Group window allows you to define the accounting parameters at a group level. If you define the accounting parameters for a group any Business Partner entered using this group will have these accounting parameters automatically populated. You can then make any modifications necessary at the Business Partner level.

2.2.8 Business Relation

Business Partner Relation allow to maintain Third Party Relationship rules: who receives invoices for shipments or pays for invoices.

2.2.9 Customer

Business partner is customer

2.2.10 Vendor

Business partner is vendor

2.2.11 Employee

Business partner is employee

2.2.12 Supervisor

Supervisor for this user/organization - used for escalation and approval

2.2.13 Substitute

A user who can act for this user

2.2.14 Position

Job position

2.2.15 Organization Assignment

Assign Users to Organizations

2.2.16 Organization Access

Client and organizations the user has access to. Entries here are ignored, if in the Role, User Org Access is not selected or the role has access to all roles

2.2.17 Pricelist

Price lists determine currency and tax treatment. Price list versions allow to maintain parallel lists for different date ranges. The most current pricelist version is used based on the document date.

All pricelists have three prices: List, Standard and Limit

2.2.18 Dunning

Dunning is the process of methodically communicating with customers to insure the collection of accounts receivable

2.2.19 Discount Schema

Trade discount schema calculates the trade discount percentage

2.2.20 Purchase Pricelist

Pricelist used for purchase in own organisations

2.2.21 PO Discount Schema

Discount Schema for Purchase Order

2.2.22 Pricelistversion

Price lists are automatically created based on Product Purchasing Information and the Vendor Category Discount

2.2.23 Pricelistschema

Price List schema defines calculation rules for price lists

2.2.24 Pricelistschemaline

Trade Discount Price List Lines

Pricelists are created based on Product Purchase and Category Discounts. The parameters listed allow to copy and calculate pricelists

2.2.25 Productprice

prices for a product based on the selected price list

2.2.26 Product

defines all products used by an organization. These products include those sold to customers, used in the manufacture of products sold to customers and products purchased by an organization

2.2.27 Productcategory

allows you to define different groups of products. These groups can be used in generating Price Lists, defining margins and for easily assigning different accounting parameters for products

2.2.28 Discount type

Type of procedure used to calculate the trade discount percentage

2.2.29 Discount break

Trade discount based on breaks (steps)

2.2.30 Level

timing and frequency of the dunning notices

2.2.31 Payment terms

defines the different payment terms that you offer your customers and that are offered to you by your vendors. Each invoice must contain a Payment Term

2.2.32 Schedule

Payment Schedule

2.2.33 Warehouse

defines each Warehouse, any Locators for that Warehouse and the Accounting parameters to be used for inventory in that Warehouse

2.2.34 Source Warehouse

Optional Warehouse to replenish from

2.2.35 Replenish

defines the type of replenishment quantities. This is used for automated ordering. If you select a custom replenishment type, you need to create a class implementing org.compiere.util.ReplenishInterface and set that on warehouse level

2.2.36 Replenish type

Method for reordering a product

2.2.37 Locator

defines any Locators (physical places)

2.2.38 Storage

Detail Storage Information

2.2.39 Attribute Set Instance

Set of attributes values

2.2.40 Related

Related Product - e.g. for promotions

2.2.41 BOM

defines those products that are generated from other products. A Bill of Material (BOM) is one or more Products or BOMs

2.2.42 Related Producttype

Product type of Related product

2.2.43 UOM

Unit of Measure, defines a unique non monetary Unit of Measure

2.2.44 Conversion

defines the rates for converting a Unit of Measure. The system provides some automatic conversions between units of measures

2.2.45 Product Category

allows you to define different groups of products. These groups can be used in generating Price Lists, defining margins and for easily assigning different accounting parameters for products

2.2.46 Producttype

type of product also determines accounting consequences

2.2.47 Attribute Set

define Product Attribute Sets to add additional attributes and values to the product. You need to define a Attribute Set if you want to enable Serial and Lot Number tracking

2.2.48 Attribute Set Instance

Attribute values for Attribute Set

2.2.49 Attribute Use

Attributes Used for the Product Attribute Set

2.2.50 Attribute

Product Attribute like Color, Size, etc. If it is an Instance Attribute, all products have the same value

2.2.51 Attribute Value

Individual value of a product attribute

2.2.52 Attribute Value Type

The Attribute Value type deternines the data/validation type

2.2.53 Attribute Search

Attributes are specific to a Product Attribute Set (e.g. Size for T-Shirts: S,M,L). If you have multiple attributes and want to search under a common attribute, you define a search attribute

2.2.54 Exclude table

Create a record, if you want to exclude the ability to enter Product Attribute Set information

2.2.55 Shipment, Receipts

Material Shipment and Receipt Lines

2.2.56 Movement

Material Movement Lines

2.2.57 Invoice

AP / AR Invoice Lines

2.2.58 Freight Category

used to calculate the Freight for the Shipper selected

2.2.59 Replenish type

indicates if this product will be manually re-ordered, ordered when the quantity is below the minimum quantity or ordered when it is below the maximum quantity

2.2.60 Purchasing

define the pricing and rules (pack quantity, UPC, minimum order quantity) for each product

2.2.61 Mail Template

Mail templates can contain variables of the user, business partner or a general object. The priority of parsing is User/Contact, Business Partner and then the underlying business object (like Request, Dunning, Workflow object)

2.2.62 User Mail

Mail sent to the user

2.2.63 Download

Define downloads for a product. If the product is an asset, the user can download the data

2.2.64 Price

displays the List, Standard and Limit prices for each price list a product is contained in

2.2.65 Tax Category

provides a method of grouping similar taxes. For example, Sales Tax or Value Added Tax

2.2.66 Transactions

the transactions that have been processed for this product

2.2.67 Revenue Recognition

defines the intervals at which revenue will be recognized. You can also base the revenue recognition on provided Service Levels

2.2.68 Revenue Recognition Plan

is generated then invoicing a product with revenue recognition. With Revenue Recognition, the amount is posted to the Unrecognized revenue and over time or based on Service Level booked to Earned Revenue

2.2.69 Revenue Recognition Run

Revenue Recognition Run History

2.2.70 Workflow

defines Workflows in the system, the access level for the Workflow and the Nodes or Steps within the Workflow

2.2.71 Access

defines the Roles who have access to this Workflow

2.2.72 Workflow type

The type of workflow determines how the workflow is started

2.2.73 Node

defines each Node, Activity or step in this Workflow

2.2.74 Process Parameter

* Only Set Customization

* Validate current (old) value

2.2.75 Parameter

Parameter for the execution of the Workflow Node

2.2.76 Transition

Next Nodes Tab defines the order or Nodes or Steps in a Workflow

2.2.77 Condition

Optional restriction of transition of one node to the next

2.2.78 Table Column

Link to the database column of the table

2.2.79 Action

Actions can be:

* Apps Report (Process)
* Document Action (Document Action)
* Email (Email Recipient, Email Template)
* Set Variable (Table – Column)
* User Choise (Table – Column)
* User Form (Form)
* User Window (Window)

2.2.80 Calendar

defines each calendar that will be used by an Organization

2.2.81 Year

define each year for the specified calendar

2.2.82 Non Business Day

defines those days to exclude when calculating the due date for given payment terms

2.2.83 Period

defines a Period No, Name and Start Date for each Calendar Year. Each period begins on the defined Start Date and ends one day prior to the next period's Start Date

2.2.84 Period Control

displays the status of a Period (Never Opened, Opened, Closed)

2.2.85 Tax Category

facilitates reacting changing tax rates

2.2.86 Charge

defines the unique charges that may be associated with a document

2.2.87 Tax Rate

defines the different taxes used for each tax category

2.2.88 Parent Tax

indicates a tax that is a reference for multiple taxes. This allows you to charge multiple taxes on a document by entering the Parent Tax

2.2.89 Tax ZIP

For local tax, you may have to define a list of (ranges of) postal codes or ZIPs

2.2.90 Requisition

Material Requisition can be created automatically via Replenishment. You create generate optionally consolidated Purchase Orders

2.2.91 Requisition line

Material Requisition Line

2.2.92 Document type

defines any document to be used in the system. Each document type provides the basis for processing of each document and controls the printed name and document sequence used

2.2.93 Purchase Order

defines a purchase order for an organization. When a Purchase Order has been entered you can generate a Shipment Document or Invoice from this Purchase Order

2.2.94 GL Category

General Ledger Categorie

defines optional identifiers for a document or journal. Each Category may be used on a document, manual journal or import

2.2.95 Category type

indicates the source of the journal for this category. Journals can be generated from a document, entered manually or imported

2.2.96 Document Basetype

identifies the base or starting point for a document. Multiple document types may share a single document base type

2.2.97 Document Sequence

defines how document numbers will be sequenced. Change the way document numbers are generated. You may add a prefix or a suffix or change the current number

2.2.98 Print Format

determines how data is rendered for print

2.2.99 Display Order

Display Order of the Print Format Items

2.2.100 Sort Order

Sort Order of the Print Format Items

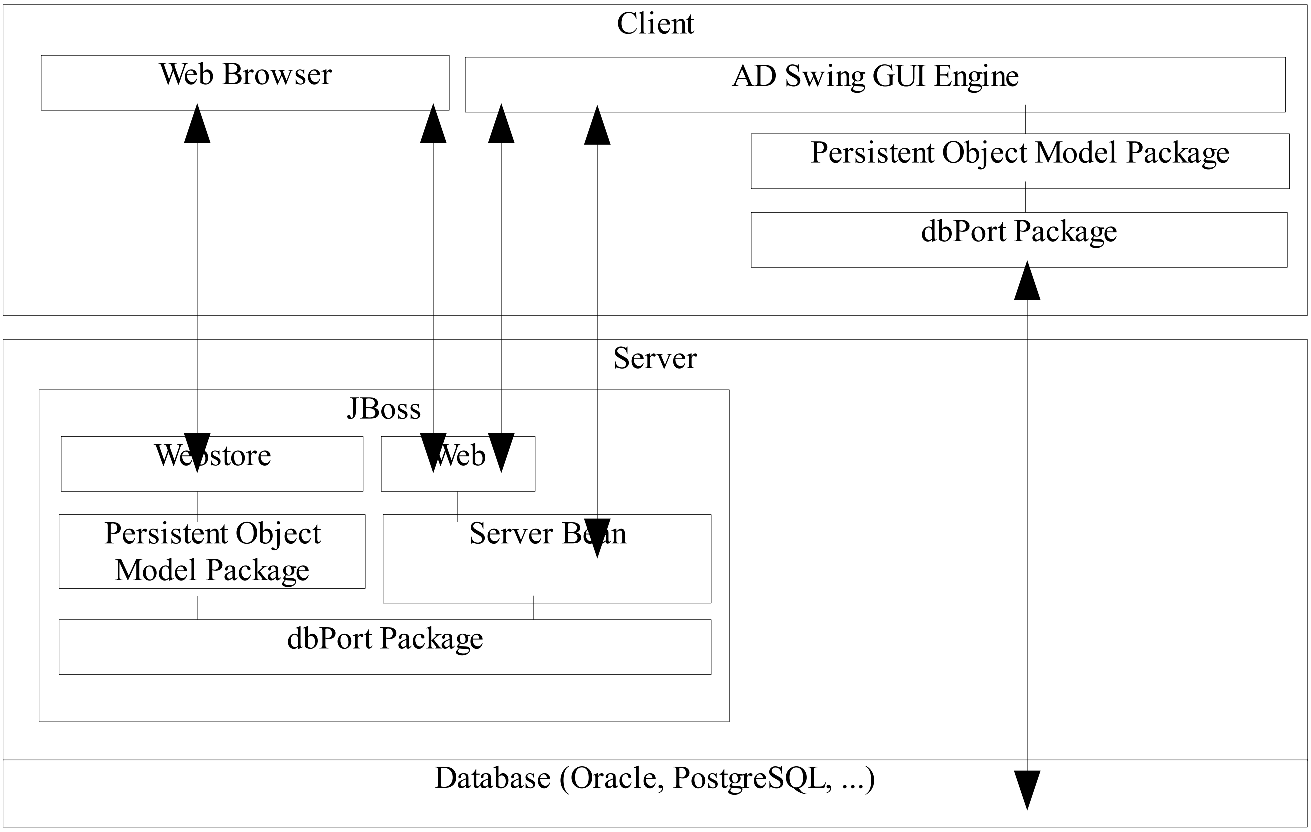
2.2.101 Format Item

Item in the print format maintaining layout information. The following additional variables are available when printing:

@*Page@ - the current page number
@*PageCount@ - the total number of pages
@*MultiPageInfo@ - "Page x of y" - only printed if more than one page
@*CopyInfo@ - if it is a copy of the document "Duplicate" is printed
@*ReportName@ - name of the report
@*Header@ - Full Header with user/client/org name and connection
@*CurrentDate@ - the print date
@*CurrentDateTime@ - the print time

2.3 AD

2.4 Architecture



Client is devided in 2 implementations: Web Brower and Swing GUI.

The Web Browser can follow 2 paths to manage data and business processes:

1. Webstore – PO Model Package – dbPort Package
2. Web Package – Server Bean – dbPort Package

Both solutions are called depending the function that is called and are running on server side in a JBoss application server instance.

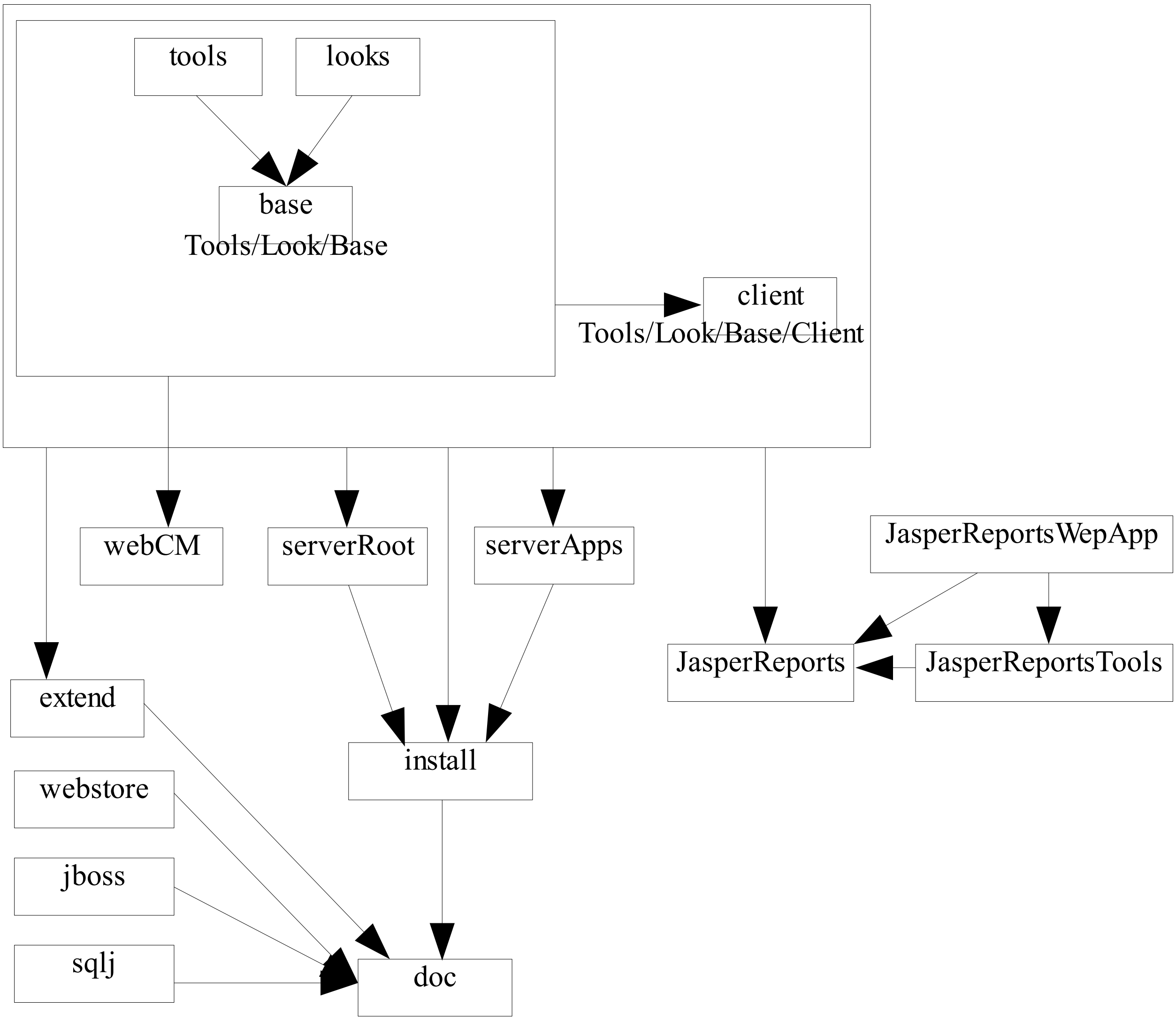
The GUI client can follow 3 paths to manage data and business processes:

1. Web Package – Server Bean – dbPort Package
2. Server Bean – dbPort Package
3. PO Model Package – dbPort Package

Solution 1 runs on the server side in JBoss application server instance.

Solution 2 and 3 run on the client side and make no use of the application server.

2.5 Project structure



base: basis of ADempiere, contains packages for database access, AD interpretation and data models, process handling, printing, interfaces, workflows handling, ...

client: GUI interface, contains packages for translating the GUI metadata into swing windows and handling user interactions

data: (no compilation code), contains database seeds, translation packages and accounting schemas

db: not in use anymore, moved to base. Has various templates and sql files and data erd.

doc: documentation ?

extend: adempiere extention classes

extention: custom extention classes

install: install ADempiere: setup tool for ADempiere

interfaces: not in use anymore, moved to base

JasperReports: Report viewer, contains base code for viewing the Jasper Reports.

JasperReportsTools: jar packages used by JasperReports en JasperReportsWebApps projects

JasperReportsWebApps: JasperReport application server (contains javabean)

jboss: jar packages needed to deploy ADempiere on jboss server

launch: launch ADempiere (only for windows ?)

lib: contains the customization.jar package, implementation dependant programming

looks: GUI visual presentation, contains the plugable look and feel package

migration: ADempiere migration scripts (database migration)

nbproject: Netbeans files

packages: various tools packed in zip files

posterita: ADempiere web client

serverApps: Web application, contains ADempiere servlets

serverRoot: Server application, contains JavaBean and Server side process routines.

sqlj: sql java routines

tools: various general tools

utils: Command line scripts for setting up ADempiere

utils_dev: development command line scripts, Database backup

webCM: ???

webStore: ???

3 Adempiere ERP-Business Suite[6]

ADempiere is the strategic tool aiming to help companies gain a competitive edge within the growing economy.

- As opposed to traditional ERP software, ADempiere is designed around business processes and transactions rather than on the traditional accounting and departmental architecture.
- ADempiere is an open source Enterprise Resource Planning (ERP) and Customer Relations Management (CRM) software that provides a seamless 360-degree view of your company, its customers and vendors. ADempiere puts the power of timely and consistent communications within reach of small to medium-sized businesses by offering superior ERP software that is affordable, adaptable, and scalable, ensuring that companies always have exactly the solution they need.
- Beyond Enterprise Resource Planning (ERP) and Customer Relations Management (CRM), Adempiere also integrates Supply Chain Management (SCM), and On-line Analysis Processing (OLAP).

3.1 Key Features

3.1.1 Complete ERP

- An ERP is an information system that integrates every related application for the entire enterprise. It integrates all departments and functions across the company onto a single computer system that can serve every single one of the different departments' particular needs. This system thus ensures consistency and validity of data. This centralised architecture also ensures that entire user interface is consistent.
- Business processes drive ADempiere's design. In today's world, people often cover entire business processes or even multiple related processes rather than work inside of a single department.
- For example, the supply chain management module will only make sense when information is simultaneously retrieved and consolidated across many different departments and business processes such as accounts payables, purchase order, sales order, inventory management and CRM.

6 http://www.adempiere.com/wiki/images/3/34/Why_should_a_company_implement_ADempiere_v2.pdf
Chapter 2. until chapter 2.2 - Copyright Posterita, licence GPL

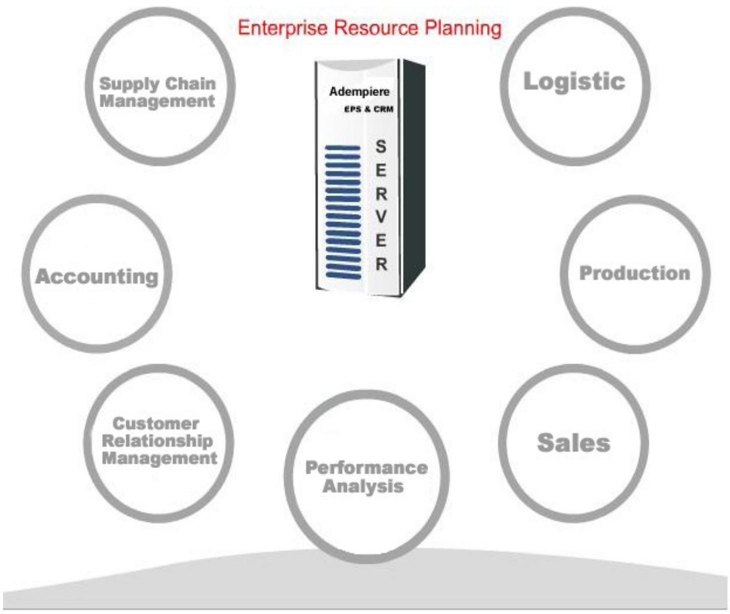


Abbildung 1: ERP Overview

3.1.2 Supply Chain Management - SCM

- SCM covers all material management activities including inventory receipts, shipments, and material moves within a client and its organisations and to suppliers and customers.
- With its Warehouse model, ADempiere can tackle any type of product. This is possible thanks to a well thought out matrix of product attributes set. Different units of measures, product categories, multiple price list, brands, tax category, revenue recognition as well as many other fields are supported so that any product can be configured. As shown in the next figure, Adempiere generates and manages all the required type of documents needed to track every detail related to material movements (dates, time, quantity, warehouse transfer, shipment, replenishment level, reserved stock and so on). Linked to that is an intelligent valuation process that can display your stock valuation according to different costing methods, such as standard costing, average costing and actual costing (Last PO, FIFO, LIFO). This implies that the management can at any time access real, actual stock figures in quantity as well as in value!

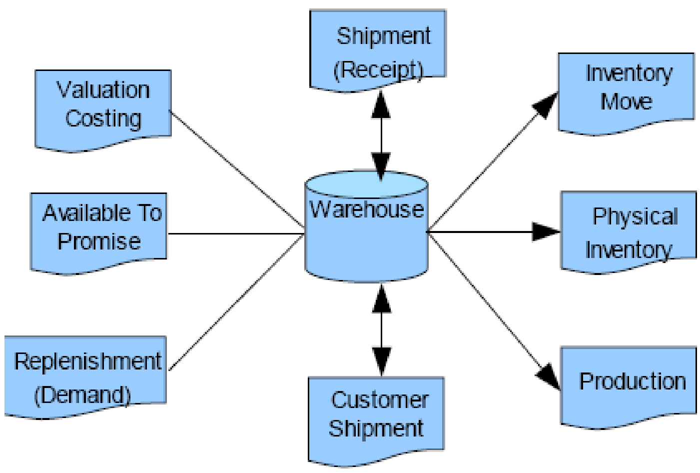


Abbildung 2: Supply Chain

3.1.3 Customer Relationship Mangement - CRM

- CRM, on the other hand, is a business strategy built around the concept of being customer-centric. The main goal is to optimise revenue through improved customer satisfaction via improved interactions at each customer touch point.
- It is not an independent module, but the logical view of all customer and prospect related activities. ADempiere CRM solution builds value for your business by opening up vital communication channels and creating a common client-focused knowledge base to better serve your clients.
- ADempiere allows a company to obtain a complete view of customers. Any information management might want to know about customers is available and can be checked by its staff.
- Moreover, ADempiere with its audit trail facility can help a company evaluate the effect of a promotional campaign as management will be able to check sales over any period of time.

3.1.4 Performance Analysis

ADempiere Performance Analysis tool covers the costing and accounting dimensions of the application and is transactional based. It allows operational data to be collected, analysed, and centrally managed from a wide variety of angles. As it combines the details of all transactions, it is easy to retrieve and analyse reports according to the level of details needed (per product, product category, by customer, by customer group, etc). This feature will allow the management to focus on business processes such as planning and forecasting.

3.2 A strategic tool that will evolve with your company

- ADempiere will always be the strategic tool that will evolve as your business needs change. With its multifeature architecture, it can cater to any company's needs.
- Multi-organization (different organizational entities can share data or make sure that private data is not accessible by other entities.)
- Multi-products/services (from any type of products, items, services or even resources according to the nature of the business.
- Multi-Currency (ability to make any transaction in foreign currencies.)
- Multi-Accounting and Multi-Costing (can maintain in parallel different accounting schemas as well as various costing methods)

- Multi-Language (interface screens and reports in many languages)
- Multi-Tax (ADempiere tax matrix can handle any tax system)

3.3 Current Developments

At the time of writing, this document is based on ADempiere Version 3.5.1a Rev. 5331.

3.3.1 Manufacturing Management

For further study see Chapter 5 in this document

3.3.2 Global Tax Management

Needs some time for investigation.

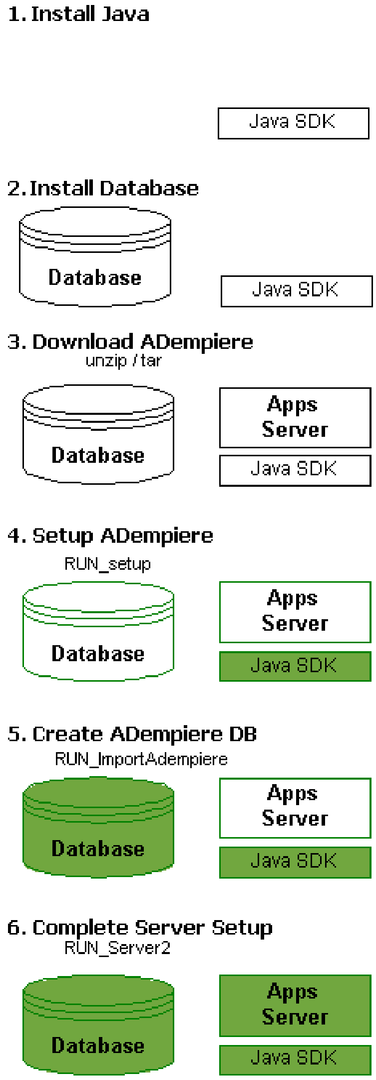
3.3.3 Human Resource & Payroll

Needs some time for investigation.

4 Installation

There are many installation tutorials and HOWTOs, which will be found on the following URL: http://www.adempiere.com/wiki/index.php/ADempiere_Installing

A good overview of the installation steps is given by the following picture:



Step 1: http://java.sun.com/javase/downloads/index_jdk5.jsp

Step 2:
- OracleXE: http://www.oracle.com/technology/products/database/xe/index.html
- PostgreSQL: http://www.postgresql.org/download/

If you plan to install postgreSQL, the appropriate PLJAVA version (pljava and postgresql) has to be installed and setup correctly. Information are updated on a regulary basis and can be found here: http://www.adempiere.com/wiki/index.php/PLJAVA .

Step 3:
- Adempiere: https://sourceforge.net/project/showfiles.php?group_id=176962

Step 4:
- Run setup from $ADEMPIERE_HOME

Step 5:
- Run import from $ADEMPIERE_HOME/utils

Step 6:
- Run Server from $ADEMPIERE_HOME/utils

Step 7:
- Run client (RUN_Adempiere.xx) from $ADEMPIERE_HOME

For Windows XP, the following example is a good starting point on a step-by-step basis: http://www.adempiere.com/wiki/index.php/Adempiere_Install_WinXp